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Drug utilization pattern in orthopaedics tertiary care teaching hospital of central U.P

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Abstract

Background: The proper evaluation of the prescribing indicators helps to curb the injudicious use of drugs. Keeping this point in mind the present study was designed and carried out in order to check the prescribing pattern in the orthopaedic outpatients using the WHO prescribing indicators in a tertiary care teaching hospital, Lucknow.

Methods: Data was collected from the outpatients of the orthopaedic department relating to demographics and the drug details in a structured Performa and were subsequently analyzed in accordance with the WHO prescribing indicators. The prescriptions were further analyzed for any errors relating to the prescription writing. Values were expressed in percentages.

Results: A total of 261 prescriptions were analyzed comprising 796 drugs. Out of 261 patients, 147 (56.32%) were male while 114 (43.68%) were females. Most of the patients, i.e. 137 (52.49%) belonged to the age group of 18 – 60 years. Out of the total prescriptions analyzed it was found that only 37 (14.18%) had drugs prescribed by the generic names and only 115 (44.06%) prescriptions were complete in all respect. Anti-ulcer drugs were most commonly prescribed and a total of 227 (86.97%) prescriptions had them. This was followed closely by NSAIDs with or without serratiopeptidases which formed a part of 217 (83.14%) prescriptions. Polypharmacy was an area of grave concern and the average number of drugs per prescription came out to be 3.05. A total of 128 (49.04%) prescriptions had 5 drugs written in them. The signature of the treating doctor was absent in or there was an untraceable signature in 235 (90.04%) prescriptions while the stamp of the treating doctor was absent in 216 (82.76%) cases. In 146 prescriptions (55.94%) the duration of treatment was not written and the follow up advice was not clear in 195 (74.71%) cases.

Conclusion: This study provides the insight to the prescribing pattern in outpatients of orthopaedic department. The results obtained clearly show an immediate need for the increased awareness among the physicians as well as the medical students towards the WHO recommended prescribing indicators.

Keywords: Prescribing pattern, WHO prescribing indicators, orthopaedic outpatients, drug utilization pattern, polypharmacy

Introduction

The importance of the periodic evaluation of the drug utilization studies cannot be undermined as it will pave the way for an increased therapeutic benefit and consequently suppress the occurrence of the adverse effects. The study of the prescribing patterns is important because of its ability to monitor, evaluate and work as a system which provides feedback, but can also be used to highlight the modifications that can be undertaken by the medical practioners which will go a long way in making the medical care rational coupled with being cost-effective [1].

WHO has defined the drug utilization studies as ‘marketing, distribution, prescription, and use of drugs in a society, with special emphasis on the resulting medical, social and economic consequences’ [2]. In especially a country like India where the financial resources are limited and the affordability of the patients becomes a big issue in institution of the proper medical care the rational use of medicines becomes an utmost point of consideration [3].

The point of relevance can be further drawn from the fact that even international agencies like WHO along with International Network of Rational Utilization of Drugs have recognized the huge potential that the drug utilization studies carries which may ultimately promote the rational use of medicines and thus have applied themselves to evolving the standard indicators

of drug use as well as the methods of data collection associated with these studies [4].

The prescribing pattern carries a much more significant effect in the field of orthopaedics since most of the prescribed drugs are associated with the possibility of the development of untoward adverse effect [1]. Some of the most commonly used drugs in orthopaedics can be enumerated as non-steroidal anti-inflammatory drugs (NSAIDs) along with anti-ulcer agents [5].

WHO has come up with the indicators of prescribing practices which serve to measure the performance of the health care providers. These indicators can be enumerated as follows [6, 7]:

1. **The average number of drugs per encounter:** This indicator is used to measure the degree of polypharmacy which constitutes an important aspect of drug reactions and adverse reactions.
2. **Percentage of drugs prescribed by generic name:** It is used to measure the tendency of prescription by generic name which helps to control the drug costs.
3. **Percentage of encounters with an antibiotic prescribed:** This aims to evaluate the excessive use of antibiotics which constitutes an important aspect of antibiotic resistance.
4. **Percentage of encounters with injections prescribed:** This indicator helps in the evaluation of excess injectables which may have dire consequences.
5. **Percentage of drugs prescribed from essential drugs list or formulary:** This measures the degree to which practices conform to a national drug policy.

Objectives

The present study was designed with the objectives of:

- a. To reflect the demographic profile of the patients attending the OPD of the Orthopaedic department.
- b. Calculating the drug prescription profile per analyzed prescription.

- c. Studying the common categories of drugs prescribed to outpatients of the Orthopaedic department.
- d. To calculate the total number of drugs used per prescription
- e. To point out the most commonly observed shortcomings in the prescribing pattern.

Materials and Methods

Study Design

The study has been designed as a prospective, observational study which was carried out in the orthopaedic department in a tertiary care teaching hospital, Lucknow, after obtaining the permission from the Institutional Ethics Committee.

Collection of data

The prescriptions were analyzed based on the objectives of the study. The age and sex of the patients, drug prescription profile, drugs prescribed, total number of drugs in prescription and the problems associated with the prescriptions were looked into.

The problems associated with the prescriptions could further be subdivided into whether the diagnosis was written or not, presence of proper signature on the prescription, presence of the stamp of the treating doctor, proper mention of the duration of the treatment and lastly the inclusion of a clear follow up advice.

Results

A total of 261 prescriptions were analyzed. The total number of drugs prescribed in those 261 prescriptions was 796. Thus the average number of drugs/prescription came out to be 3.05. The demographic profile of the patients from this study can be illustrated as: Children (<12 years) constituted 14.18%, adolescent (12 – 18 years) were 8.81%, adults (18 – 60 years) formed 52.49%, while the > 60 years age group made up 24.52% of the entire study population.

Table 1: Demographic profile of the patients

Sl. No	Age Distribution	Number	Percentage (%)
1	Less than 12 years	37	14.18
2	12 – 18 years	23	8.81
3	18 – 60 years	137	52.49
4	More than 60 years	64	24.52

In case of the sex distribution data obtained from the study it was found out that the number of males in the study population amounted to 147 which was 56.32% of the study population which was higher than the number of females that came out to be 43.68%.

Drugs were prescribed by generic names in only 14.18% of the cases. The presence of more than one antibiotic was found

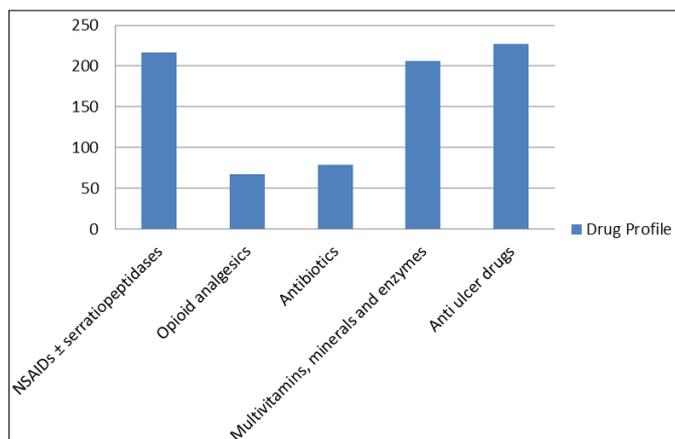
in 5.36% of the prescriptions. The complete diagnosis was written in 60.15% of the analyzed cases. Follow up advice was clearly mentioned in 25.29% of the prescriptions. Only 68.2% of the prescriptions that were analyzed were found to be legible and only 44.06% of the prescriptions were complete in terms of dose, route, strength, frequency and dosage forms.

Table 2: Drug Prescription Profile

Sl. No	Parameters	Number of prescriptions	Percentage (%)
1	Drugs were prescribed by generic names	37	14.18
2	More than 1 antibiotic prescribed in	14	5.36
3	Complete diagnosis written	157	60.15
4	Follow up	66	25.29
5	Legibility	178	68.20
6	Complete prescription in terms of dose, route, strength, frequency and dosage forms	115	44.06

The NSAIDs with or without the serratiopeptidases were prescribed in 83.14% of the prescriptions. The use of opioid analgesics was present in 25.67% of the cases. Antibiotics were used in 30.27% of the patients. Multivitamins, minerals

and enzymes formed a part of 78.93% of the prescriptions. Anti – ulcer drugs paved its way to 86.97% of the prescriptions. (Graph-1)



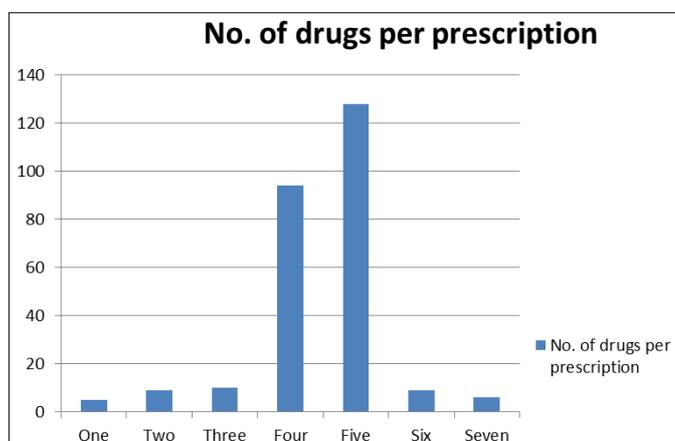
Graph 1: Common categories of drugs prescribed to outpatients

The NSAIDs constituted 27.26% of the prescribed medications. The use of opioid analgesics was found in 8.42% cases. Antibiotics formed 9.92% of the medications that was prescribed. Multivitamins, minerals and enzymes were used in 25.88% of the total medications. The anti-ulcer drugs formed 28.52% of the medications that was prescribed to the patients. (Table-3)

Table 3: Total drugs used

Sl. No	Category of drugs	Number of drugs	Percentage of the total drugs (%)
1	NSAIDs ± Serratiopeptidase	217	27.26
2	Opioid analgesics	67	8.42
3	Antibiotics	79	9.92
4	Multivitamins, minerals and enzymes	206	25.88
5	Anti – ulcer drugs	227	28.52
Total drugs		796	

Polypharmacy was also a thing for concern since the maximum number of drugs that were prescribed in a single prescription was five which was present in as many as 49.04% of the prescriptions, 36.01% of the prescriptions had four drugs in them. The number of prescriptions with six drugs was 3.45% while 2.3% prescriptions had seven drugs in them. (Graph- 2)



Graph 2: Number of drugs in prescription

Certain problems were also observed in the prescriptions which can be enumerated as absence of a diagnosis, absence of a proper signature or the presence of an untraceable signature, absence of the stamp of the treating doctor,

duration of treatment not written, follow up advice not clear (Table-4)

Table 4: Problems observed in prescriptions

Sl. No	Description of problem	Number of prescriptions	Percentage
1	Diagnosis not written	104	39.85
2	Signature of doctor absent/ untraceable signature	235	90.04
3	Stamp of treating doctor absent	216	82.76
4	Duration of treatment not written	146	55.94
5	Follow up advice not clear	195	74.71

Discussion

The utmost priority of the health care system is to provide the right medicine to the right people at the right time. The best way that this can be ensured is by the adherence to the WHO recommendation on the rational drug policies. The prescription that often sums up the visit of a patient to the treating physician not only reflects the doctor’s attitude towards the disease but also indicates the role that the drugs will play in the treatment of the disease. Prescription auditing has attracted a lot of attention in studying the drug utilization pattern as it mirrors the quality assurance in hospitals [8]. The data generated through this auditing is of immense value to all strata of the health care industry even can be extended toward making a suitable policy.

In the present study a total of 261 prescriptions were analyzed. The results showed a male preponderance over female with the most common age group being 18 – 60 years. The average number of drugs forms an important parameter in the study of the drug utilization pattern. It is advisable to keep the number of drugs per prescription to less than 3 [9]. The result seen in this study however showed this number to be 3.05. With an increase in the number of drugs per prescription there may be increased risk of drug interactions, expose the patient to more adverse drug reactions as well as also increase the cost of treatment which is to be borne by the patient. Not only this but there can be more cases of prescribing and dispensing errors [8].

Only 14.18% of the drugs were found to be prescribed by the generic names which is very low when compared with other Indian studies among which this figure has touched 73.4% [10]. This reflects poorly on the physicians who are already facing allegations of acceptance of undue favours from the pharmaceutical companies. The use of generic names has been strongly advocated in all spheres of the health care sector and it is high time that we start doing the same.

In the present study 86.07% of the prescriptions contained anti-ulcer drugs which were the most popular drug. This was followed by NSAIDs either with or without serratiopeptidases which was a part of 83.14% of the prescriptions. NSAIDs are associated with the increased incidences of upper gastrointestinal complications [11-13]. Clinicians use several strategies to combat this adverse reaction and the use of anti-ulcer agents is one of the most common ones. According to a study conducted in Japan most orthopedician use some form of medicine to combat the NSAID induced ulcer [14]. However it is surprising to see that more anti-ulcer drugs were used in comparison to its cause, the NSAIDs. It shows a picture of injudicious use of drugs.

The results also showed that polypharmacy was another area of great concern. A total of 49.04% of the prescriptions had 5 drugs in it. This result is in clear violation of the WHO principles and needs to be addressed with a strict adherence to

the protocol [9].

A multitude of problems were seen in the prescriptions with the most common one being the absence of the treating doctor signature or the presence of an untraceable signature which was surprisingly found in 90.04% of the prescriptions that were analyzed. The stamp was absent in 82.76% cases. Another area of great concern was that the follow up advice was not clearly written in 74.71% of the cases which may form a hindrance to the patient in getting the best medical care. All these shortcomings that were encountered in the collected data clearly shows that there is an immediate need of the revision of the prescription practices that are being followed in our hospital.

Conclusion

The use of prescription auditing gives a picture about the standard of prescribing practices that are being followed. Through this study it has been established beyond doubt that the prescribing practices need to be altered in all aspects.

Recommendations

With the goal of providing the best medical care to the patients a plan needs to be formulated which will take into consideration the WHO guidelines, Essential Drug List and Drug Policy. All the doctors need to be made aware of these current practices and the steps taken to ensure the compliance with the recommended protocols. A re – auditing can be done after the agreed period to reflect the implemented changes and positive steps that were made in the grey areas.

Limitations

This is a study that has been conducted in only one Department and may not reflect the true nature of the drug utilization pattern in the entire institution. Also being a unicentric study it is not always the proper reflection of the prescribing habits of the entire region. Thus the generalization of the results may be difficult.

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